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The College Library[1]

AMERICAN colleges have advanced greatly in efficiency in recent years. Much of their progress is due to their voluntary cooperation in associations established by the colleges themselves—their regional associations and the American Council on Education—and especially to the standards set up by these organizations. Criteria formulated by the American Council on Education Committee on Standards have been adopted with but little change by the Association of American Universities and the four regional associations which publish lists of approved colleges. The application of these criteria to individual institutions by the several committees and commissions has been immensely helpful irrespective of recognition involved, because the criteria have been applied by educators seeking to aid the colleges. It is the practice of the associations to base their judgments on reports of facts discovered by a representative in a personal investigation of each college. Experience in applying the criteria has led to some dissatisfaction with certain of them.

The college library is one item of the fifth criterion, "Buildings and Equipment," published by the American Council on Education: "The material equipment and upkeep of a college including its buildings, lands, laboratories, apparatus, and libraries, and their efficient operation in relation to its educational progress, should also be considered when judging an institution.

"A college should have a live, well distributed, professionally administered library of at least 8,000 volumes, exclusive of public documents, bearing specifically upon the subjects taught and with a definite annual appropriation for the purchase of new books."

The Association of American Universities, the Association

[1] An address delivered before the Second Institute on Problems of College Education, the University of Minnesota, July, 1928, and printed with the consent of the University of Minnesota.

of Colleges and Preparatory Schools of the Middle States and Maryland, the Association of Colleges and Secondary Schools of the Southern States, the North Central Association of Colleges and Secondary Schools, and the Northwest Association of Secondary and Higher Schools, have the same criterion. The North Central Association adds: "and current periodicals. It is urged that such appropriation be at least $5 per student." For junior colleges in the North Central Association the minimum number of books is set at 3,000 and an annual appropriation of $800 is urged; the Southern Association requires a minimum of 2,500 volumes and suggests an appropriation of $500.

Are these criteria adequate? What is the experience of those who have used them? What *are* the signs of an efficient library in an American college?

The most specific item among the requirements of the several associations is the total number of volumes. This seems to be an objective measure easy to use. But what is a volume? It is expressly declared that government documents are not to be counted. Are unbound monographs volumes? Dr. Works presents six meanings of the word in the appendix to his "College and University Library Problems." There is confusion as to the meaning of the word "volume" and the word "title." Furthermore, unless a library has been professionally administered for many years it frequently happens that there is no accession list promptly and accurately kept in accordance with definite principles and affording a serial number which immediately gives the precise total. In reporting on the number of volumes some colleges guess; and their guesses always exceed the actual. So it is that lack of definition may lead to a census as unreliable as that which Gogol makes the basis of "Dead Souls." Thus it is that even so simple and objective a thing as the total number of volumes in a library may be difficult to learn.

With this warning in mind, consider the total number of books reported June 30,1926, by the colleges on the approved lists of the above named associations, lists which make up

that of the American Council on Education which includes institutions represented in "American Universities and Colleges."[2] The minimum set by the associations—8,000 volumes—is barely met by two colleges. Seven institutions on the approved lists of regional associations reported fewer than 8,000 volumes. The range of numbers reported is from 6,900 (Tusculum) to 2,497,200 (Harvard). Since we are discussing the college, rather than the university library, let us omit consideration of the libraries of colleges attached to universities and examine the situation in the independent colleges. Even here the range is great; from 6,900 (Tusculum) to 274,200 (Oberlin). Fourteen institutions with college curricula only, or chiefly, have libraries containing more than 100,000 volumes; Amherst, 130,000; Bowdoin, 130,000; Colgate, 107,932; College of the City of New York, 100,000; Dartmouth, 226,000, Hamilton, 110,000; Oberlin, 274,200; Ohio Wesleyan, 100,602; Smith, 133,000; Vassar, 142,000; Wellesley, 115,000; Wesleyan (Connecticut), 152,000; Williams, 111,000.

Between 6,900 and 274,200 what is the right number to set as the minimum for a college? W. W. Bishop[3] declared in 1920 that "the college with less than 100,000 volumes is but ill prepared to give modern work in the humanities and in science." If Mr. Bishop is right then an approved list of colleges must be very short, including only the fourteen colleges just named.

Dr. Works[4] declares: "Some librarians who have given much thought to this problem have as a result of years of observation reached the decision that a relatively small number of books will meet practically all the needs of an undergraduate college. They place the number at 75,000 to 100,000 for a student body of not more than 2,500." If this idea prevailed we could add to the list of fourteen the

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[2] "American Universities and Colleges," edited by David Allan Robertson. The American Council on Education. Charles Scribner's Sons. New York, 1928.

[3] "Our College and University Libraries: A Survey and a Program." *School and Society*, 12:205, September 18, 1920.

[4] "College and University Library Problems," 1927, page 12.

following nine colleges: Denison, 80,000; Marietta, 75,000; Miami, 85,000; Mt. Holyoke, 91,469; St. Mary's (Wisconsin), 80,000; St. Vincent's, 70,000; St. Xavier, 63,000; Swarthmore, 75,000; Trinity (Connecticut), 80,000. Twenty-three colleges could meet the standard; all the rest would be rejected.

W. H. Kerr,[5] in 1926, maintained that for an institution with from two hundred to five hundred students a fair minimum would be 50,000. Of 397 colleges only 128 could satisfy that test.

Just as an experiment suppose we set the minimum at a figure half that of Kerr, one-third that of Works, one-fourth that of Bishop, but three times that of the regional associations—25,000. Of the institutions now on approved lists one hundred and fifty-three having 25,000 or fewer volumes would fail to satisfy such a requirement.

If we try the number recommended by the American Association of Teachers Colleges—15,000—we find that 13 institutions report exactly this number and 36 others report smaller numbers. Because my experience with college statistics leads me to believe that the round number 15,000 given by 13 institutions indicates an actual number smaller than the one reported, I think that 49 colleges on the approved lists could not on June 30, 1926, measure up to the requirement of the teachers colleges.

Do the libraries of foreign universities offer a standard for the American college? "Mr. Ticknor once said to me," wrote G. S. Hillard,[6] "that nothing more marked the change produced in him by his long residence in Europe than the different impressions made by the library of Harvard College before his departure and after his return. 'When I went away,' he said, 'I thought it was a large library; when I came back, it seemed a closetful of books.' " At that time, 1820, the Göttingen library had 200,000 books, ten times as many as the largest college library in the United States. A compari-

[5] "What Makes a College Library?" *Library Journal*, 51:171, February 15, 1926.

[6] "Life, Letters and Journals of George Ticknor," Vol. I, p. 72. Footnote.

son of the total number of volumes in an American university library today with the number in a German or British university is less depressing. Harvard, in 1926, reported in all its libraries 2,497,200; Göttingen, in the 1926 volume of "Minerva," reported 700,127. Yale, in 1926, had in all libraries over 1,700,000. The Bodleian according to the British Universities Yearbook, in 1927, had a collection of 1,250,000 and the university library at Cambridge included 1,000,000. Of course it is to be noted that in addition to the university libraries in both these institutions there are the libraries of the different colleges. The more recently established British universities have smaller libraries: Birmingham, 120,000; Bristol, 70,000; Durham, 39,000; Leeds, 98,000; Liverpool, 100,000; Reading, 40,000; Sheffield, 83,000. But these institutions are like the ones we have eliminated from our study—the college associated with a university. Institutions more like our independent American colleges and the individual colleges at Oxford and Cambridge are the University College in Exeter which has 60,000 and that in Southampton which has 41,000. In Canada, a university like McGill has 242,000 and the University of Toronto 211,118; of college libraries Acadia has 50,000 volumes, St. Francis Xavier, 40,000.

Why should any number be set as a minimum—8,000, 15,000, 25,000, 50,000, 75,000, or 100,000? Why did the American Council on Education Committee on Standards set 8,000 as its minimum? Probably this was proposed because the third criterion declared that "for a college of approximately 100 students in a single curriculum the faculty should consist of at least eight heads of departments devoting full time to college work." For such a minimum instructional staff a library of 8,000 volumes was proposed, 1,000 for each department. Obviously there is no scientific basis for this minimum; and there is none for any of the others. Instead of announcing a number arbitrarily we need cooperation of instructors and librarians in estimating an approximate number of books necessary or desirable for a college with a given curriculum by making check lists for courses

offered, for general references, and for general reading. The standards committee or the newly appointed special committee of the North Central Association may well lead in such a study. For a given curriculum in the college it will then be possible to offer such check lists as have already been prepared for elementary and secondary education.

I did not say "for a given number of students." Librarians and educators have recently developed a habit of calculating the number of volumes per capita enrollment. For example, the Association of American Colleges' Bulletin, May, 1928, p. 278, presents such information for the Minnesota colleges: St. Olaf, 26; Hamline, 61; St. Teresa, 71; Carleton, 101; St. Benedict, 152; St. John's, 277. Dr. Works[7] studies the growth in the number of volumes in relation to the increase in the number of students. The American Library Association report on high school libraries bases recommendations concerning the number of volumes a high school should possess on the number of students enrolled. In Dr. R. L. Kelly's volume "The Effective College," he prints a recommendation of the president of Ripon College:[8] "For 500 students a library costing $200,000 and an endowment of $800,000 for maintenance, service and purchase of books." Emphasis on the total number of books and the total number of students or the number of volumes per capita may actually conceal a bad situation—as it has done in certain cases. If an institution reports 20,000 volumes and 500 students it may seem to have a satisfactory library. But if investigation shows that of 20,000 volumes 15,000 are in the field of engineering and of 500 students 50 are in 5 engineering courses one may feel that for the 50 engineering students the situation may be satisfactory; but that for the 450 students in 80 liberal arts courses it is less so. Totals and averages may conceal evils. A college, if it offers certain courses, must make available books necessary in those courses no matter what may be the number of students in the classes or the college. To measure the efficiency of a library by the number

[7] Op. cit., p. 8 ff.

[8] Page 138.

of books it possesses is like measuring the efficiency of a college by the number of students it has enrolled. The figures are significant but they must be carefully considered in connection with other matters. The number of books or students may be less significant than their quality.

The character of the book collection is mentioned in the criterion. The library must be "live," "well distributed" and must "bear specifically on the subjects taught." How can one know that a collection satisfies these demands? Read the shelves—all of them. An experienced observer can quickly discover the presence of significant numbers of dead or relatively useless books. The broken backed brown leather volumes of sermons which clergymen discard from their own libraries are easy to discover. Not long ago at the College of William and Mary I found a heap of such books upon the floor. In answer to my query, the alert and able librarian of that institution said: "In thirty years I've never had a call for a volume of sermons. I've picked these from the shelves, and I'm putting them where they can be found but where they will not be in the way of more useful books." On the other hand one college cherishes the private library of a very famous mid-Victorian clergyman of London. It comprises a large part of its total collection. It contains few books related to the college needs; it is hardly ever used. Elegant bindings and large paper editions, like the elephant folio in handsomely tooled leather which embalms the stupid poetry of Matthew Prior, do not always mean "live" books. The title on the book's back is one index to a volume's vitality. By choosing certain significant sections like Economics or Sociology or Psychology or French or Spanish or English or Biology or Geology, one can read each title and, if one knows something of the subject, determine if the works on the shelves are alive in relation to the field.

"Well distributed" the collection must be. In a college which "did not have room" for the New English Dictionary I found on the reserved book shelves copies of "Dusty Answer" and Marie Corelli's "Thelma" and ten out of date copies of "Who's Who in America." Not long ago I had

occasion to examine a university library. The institution had a highly competent staff in Biology, fully equipped laboratories and a live and large collection of books and periodicals in science. In English literature that institution offered two courses in Shakespeare, two in the history of the English novel and one in the theory of fiction—courses I used to conduct at the University of Chicago and for which I knew what books were necessary. The English section of the general library was made up largely of English fiction of a certain decade of the twentieth century. When I asked if there were other books in the English literature section the Dean said: "Oh, we have departmental libraries." "Fine," said I, "show me the English one." We found it at the top of the oldest building on the grounds. It was five shelves high and four feet wide above the desk of the head of the English department. After reading these shelves I asked if the library possessed certain books essential in a course on the English novel. It had none of them. The teacher of the Shakespeare course standing by, I asked if the library had books in common use in such a class—the Variorum Edition, which every progressive high school has today, Sidney Lee's "Life of Shakespeare," and other titles equally obvious to a student of Shakespeare. It had none of them. "What have you in the field of Shakespeare?" I asked the Shakespeare instructor. The only book relating to Shakespeare possessed by that library was W. A. Neilson's single volume edition of the collected plays, an excellent book but one which is in the possession of every member of an elementary class in Shakespeare. Certainly this university, offering courses in Biology and well equipped with laboratories and library to do so, and offering the above named courses in English and with such a collection of books to support them can hardly be said to have possessed a "well distributed" collection.

Sometimes a library seems to violate the principle of good distribution in that it has some notable special collection, such as the Quaker material at Haverford or the Negro-Americana at Howard University, Marietta's Stimson collection and manuscripts in the history of the Northwest

Territory, Grove City's General George B. McClellan Civil War Collection, the Lindenwood College manuscripts of early Missouri history. Ohio Wesleyan has late seventeenth and early eighteenth century English literature. Lehigh, so well known for engineering, has a collection of English literature prior to 1640, including the first and second Shakespeare folios. Such special collections useful for research—many are mentioned in "American Universities and Colleges"—are to be cherished and extended if, after the needs of the courses are cared for, funds can be devoted to them.

The associations decree that the books shall bear "specifically on the subjects taught." My illustration of a library which was not "well distributed" might better have been used at this point. Between the number of books and the number of departments it is difficult to find a clear relation because the numbers and names of departments are so various. Sometimes a college has only a single department of ancient languages; sometimes there are at least two: Greek and Latin. Sometimes modern languages are in a single group; sometimes French, German and Spanish are separated. The number of departments in colleges ranges from seven to twenty-seven. The relationship to courses, however, can be studied just as in the case of the course in Shakespeare and the one in the English novel. In one college I found that a student had discovered one hundred type fossils in the neighborhood of his campus and, enthusiastically looking foward to graduate work in paleontology, had taken all the courses in geology offered in his college. Curious to see what the library offered this excellent student, I read the shelves. There were only fifty books in the field of geology and geography, for the most part books of the 1880 science and religion controversy. Fortunately for this lad, his instructor had a private library which he generously used to supply the deficiencies of the college collection. In the same college, which offered thirteen courses in French, I found that the Romance collection included only thirty-two books. When I asked the librarian, not a professionally trained one, if that was all he had, he said that he had hidden some of the

French books because he thought they ought not to be accessible. I insisted on seeing the "hidden books." There was only one—an English translation of Rabelais. Needless to say that institution is not on the approved list of the Association of American Universities. Happily such an experience is exceptional.

General reference works are needed by all departments. Sometimes a department hopes that some other one will be willing to charge to its appropriation a book needed by all. Such a situation makes necessary the trained librarian to guide development. The professionally trained librarian knows the importance of each reference work named in the Mudge list published by the American Library Association.[9] Especially, I find, the professionally trained librarian always knows the importance of the New English Dictionary, called also the Oxford or Murray's, completed in 1928 after seventy years of international cooperative scholarly endeavor and the greatest dictionary ever published. If it is not in the library, both the library and the English department will require special investigation. It is the touchstone of the college library.

The practice of having in the main reading room or adjacent to it a group of shelves for use in connection with current classes has become general. President Eliot in his annual reports used to refer with interest to the significant increase in the number of reserved books. In building up the reserved book list the library has the assistance of every instructor who prepares a bibliography for each of his own courses. As I have already suggested, by making a list of the courses leading to the A.B. and B.S. degrees and by securing from the instructors in those courses lists of the books necessary or desirable in relation to their courses, a librarian could make up a check list of books for a college library. If the librarians and teachers of several colleges would do this and then compare their lists, the resultant one would be extremely useful not only for colleges but for junior colleges, the library standards for which are at present lower

[9] J. G. Mudge: "New Guide to Reference Books," A. L. A., Chicago, 1923.

than those recommended by the American Library Association Committee for high schools. Such a list would be as important for colleges as the American Library Association catalog is for the public libraries. When this list first appeared in 1904 it included 8,000 books; in 1926 it had 10,295 titles useful in the small public library. We have also the Mudge list of reference books. Miss Lucy D. Tuckerman of the Worcester Art Museum has just issued a list of about 7,000 works demanded in the library of a small art museum. A list for a college library could be built up on the experience of the colleges in forming their reserved book collections and would be useful.

A moment ago I decried the discussion of the relation of the total number of books to the total number of students. In connection with reserved books there does indeed arise a problem connected with the number of students who must use a given book at a certain time: Duplicates. Sometimes they are included in the report of the total number of volumes. Sometimes they are not counted. The problem of duplicates has become pressing, as the increase in the number of students has brought to the consciousness of librarians the need for several copies to supply a demand. If a large class must read a particular assignment on a given day, there will be a severe draft on the library. This can be somewhat alleviated if the instructor will make his expectations known early in the course so that readers and librarians may adjust themselves to the resources of the library. Colleges sometimes furnish one copy for every five students in a class, sometimes one book for fifteen; usually one copy for ten students. At Columbia University the growth of the number of duplicate copies has been notable and typical: 1910-11, 115; 1911-12, 190; 1912-13, 1,240; 1913-14, 3,523. In the Columbia reading room for undergraduates, out of 6,000 books 1,000 are duplicates. The practice of providing duplicates leads to the purchase of a great many copies of a few books which may at the moment be considered necessary in a course, but which may never again be used even in the course for which ordered, because the instructor some-

times changes his mind about the content of his course or the method of conducting it. One college recently visited has ten copies each of many elementary works, indeed thirty-four copies of a certain text-book, but no copies of essential reference books, notably the New English Dictionary. As yet, however, I am glad to say that I have found no college which includes in a report of its library resources the duplicate hymn books and Bibles in the pews of the college chapel!

Only the North Central Association makes any reference to the importance of current periodicals. I have found the list of current periodicals of great significance. In "American Universities and Colleges" the number reported varies from 10 (College of Charleston) to 11,774 (University of California). Twenty-eight universities receive more than 1,000 periodicals each. Twenty-seven receive from 500 to 1,000. In this group we find Carleton, William and Mary, Mills, Ohio Wesleyan and Vassar—institutions with a college curriculum. Among such colleges we find much variance: Carleton, 600; Carroll, 25; Charleston, 10; Colgate, 320; Dartmouth, 1,200; Hamilton, 425; Hampden-Sidney, 24; Haverford, 200; Incarnate Word, 18; Missouri Valley, 30; Mt. St. Mary's, 20; Mills, 508; Pomona, 385; Reed, 200; Skidmore, 218; Sweet Briar, 90; Vassar, 560; Wabash, 125; Washington (Maryland), 25; Wells, 347; Wesleyan (Georgia), 76; Western, 60; William and Mary, 500. Why should Vassar with a college curriculum have 560 while Sweet Briar has only 90? Is it because Vassar had at that time 1,149 students while Sweet Briar had 437? Well, then, why should Sweet Briar with 437 students have only 90 while Wells with 242 students has 347?

A useful document for the college librarian is Frank K. Walter's "Periodicals for the Small Library." Another is Dr. Leo F. Stock's list of 215 American learned journals.[10] With these as a general check list the college librarian with the cooperation of instructors can build up a useful list of

[10] "List of American Journals devoted to the Humanistic and Social Sciences." American Council of Learned Societies Bulletin No. 8. October, 1928.

periodicals for his own college. The chemistry department, for instance, will need the "Abstracts," not mentioned in Mr. Walter's list, and will gladly follow the procedure described in "Science," October 28, 1927, to determine what publications are most useful to the instructors and students in chemistry. The article to which I refer is based on a study of references to periodicals, made in a single volume of the American Chemical Journal. Likewise the instructor in English will be interested in general magazines but also in such reviews as the "London Times Literary Supplement," by far the best published in English, and such scholarly publications as "Anglia." The French departments have long been aware of the stimulation their elementary students find in "L'Illustration" and "Revue de Deux Mondes" and "Mercure de France." As an English teacher I used to look up in the recorder's office the language training of each student registered in my class and in assigning work in bibliography or criticism I took seriously the student's language training expecting him, if he had finished the requirement in French, to use current French magazines. Of course there was usually some surprise that an English teacher should assume that the modern language training was useful—to such a pass have we come with our system of crediting semester hours—but usually also there was gratification to find that the study of a modern language had actually given some control of a tool. It has given me great pleasure to find at many colleges science as well as literature and history professors who expect their students to use their modern languages. In at least one college I found that the French and German periodicals had apparently been secured for the private amusement of professors. The journals in the college library ought to be for the use and delight of students as well as professors.

How significant a periodical list may be in revealing the character of a single department in a university or college appears in the following way. The Research Information Service in 1925 reported 306 periodicals devoted to psychology or occasionally printing articles which come within the

scope of the Psychological Index. This Index includes publications on human and comparative anatomy and psychology of the nervous system, the psychological part of mental and moral philosophy and applications such as personnel research, industrial psychology, and various educational topics. Of these 306 titles 113 are printed in English and 193 are printed in foreign languages. The total number of items in this list received by a university or college and the proportion of foreign language journals on the institution's list afford an interesting indication of the institutional attitude toward the support of research and teaching in this field.

The University of Michigan, which leads American universities in the number of periodicals pertaining to psychology received by the library, reports 227, of which 98 are in English and 129 in foreign languages. Yale, Chicago, California, Columbia and Johns Hopkins each received more than 180 of these periodicals, and all of them included more journals published in foreign languages than in English. It would appear that these universities dedicated to research and graduate study endeavor to give to professors and students facilities to know the truth in whatever language it may be expressed. Among the colleges there is a significant variation in the total number of psychological periodicals in their libraries. Dartmouth receives 137; 85 in English; 52 in foreign languages. Bryn Mawr receives 102; 66 in English; 36 in foreign languages. Vassar, 97; 71 in English; 26 in foreign languages. Smith, 86; 61 in English; 24 in foreign languages. Oberlin, 82; 65 in English; 17 in foreign languages. Wellesley, 81; 65 in English; 16 in foreign languages. Amherst, 79; 58 in English; 21 in foreign languages. Williams, 52; 42 in English; 10 in foreign languages. Reed, 51; 45 in English; 6 in foreign languages. Colgate, 48; 44 being in English. Haverford, 44; forty of them in English. Swarthmore, 19; one of which is in a foreign language. In this single field of psychology the list of periodicals helps one to know which colleges afford their students access to the latest studies in journals both in English and in foreign languages.

No matter how great the number of books and periodicals in a library or how excellent the selection of them may be for college purposes, the library is valueless unless it is used. The medieval notion was that a library was for the collection and preservation of documents. Early American libraries were obsessed by the same idea. The ideal seemed to be to have every volume in its place on the shelf and to keep it there. Today the American library policy is expressed by Dr. Works: "Each institution should be studied with the idea of so locating the library resources as to make for their largest possible use by students and faculty."

The library building is now no mere storehouse or museum to which the curious may reluctantly be admitted. It is a place to use books in. Its site is chosen in relation to the convenient use of books by students and teachers. Its plans are developed to further the use of its resources. The space for readers of books and periodicals and the relation of reading rooms to stacks and delivery desk are carefully considered. And yet in view of the costly character of the college library building, usually the most monumental structure on the campus, it is surprising to find how frequently the college library is a failure. One structure erected as recently as 1912 was planned without any space for a periodical room. One university has put most of its books in underground stacks. Yale, on the other hand, has planned to carry its stacks aloft in a book tower. One can easily guess which arrangement will invite scholars to work in the stacks. Any college about to build a library will do well to place in the hands of all concerned the paper presented to the American Library Association at its meeting December 31, 1927, by Frances Warner and C. H. Brown: "Some Fundamentals of College and University Library Buildings." There is need of an illustrated manual like the useful studies of medical school buildings printed by the Division of Medical Education of the Rockefeller Foundation.[11] The

[11]See especially articles on the library of a medical school in "Methods and Problems of Medical Education." (Sixth Series.) Division of Medical Education. The Rockefeller Foundation, 1927.

professional librarians have had a wealth of experience on which architects and educational authorities can draw in planning buildings that will be not only beautiful monuments but places where books can be enjoyed.

Meanwhile the investigator of a college library will observe the evidence that the library can be and is used. Does the college assign space needed by the library to a president's office, an auditorium, class rooms, exhibition rooms, offices of members of the faculty, student headquarters for editing a newspaper or for smoking? Is the space actually assigned for the reading room adequate? What should be adequate? At one time it was suggested that the reading room should afford seats for 10 per cent of the student body; now it is proposed by some that there should be accommodations for from 15 to 20 per cent. One university is making preliminary plans for a seat for every student. Does the reading room afford easy access to general works of reference and to literature which a student might wish for general reading? Or are the shelves like those which Barrie mentions in "What Every Woman Knows:" "There is a book case of pitch pine, which contains six hundred books, with glass doors to prevent your getting at them?" Are there regulations to remind you of those in Archbishop Parker's Library at Corpus Christi College, which may be opened only by consent and in the presence of three persons each with a key to one of three locks. The number of hours the reading room is open is very important. Commonly the hours are from 8 a.m. to 10 p.m. The College of William and Mary has found it necessary to keep its library open from eight in the morning to midnight. This has its significance to one evaluating the efficiency of the college. In some colleges the library is open Sunday afternoon. Does the reading room have good light, fresh air, quiet? Are new books invitingly displayed for the inspection of students? Are there bulletins concerning new accessions or suggested reading either for courses or for general culture.

At the delivery desk there are signs of the use of books. The circulation statistics ought to be available; if they are

not, the fact is significant. The attitude of the attendants toward students can be observed at this desk. Are the attendants possessed of a desire to serve? Do they cooperate with the librarian and instructors who conduct courses in the use of the library?

Other reading rooms may be found in other buildings. Departmental libraries show much of the quality of the departments concerned. If the books are well cared for, in order, with convenient facilities for consulting or withdrawing them, one gets a different impression from what one gets in an instructor's office where the departmental library is locked up practically as a private collection. In the departmental library and in the instructor's office the presence of journals is significant. On the general policy of departmental libraries discussed in almost every meeting of librarians it is not necessary to comment. The University of Illinois program mentioned by Dr. Works[11] seems to afford an excellent solution for many difficulties.

In the librarian's office there is much evidence of the quality of a library. In classifying books the librarian should treat the collection as a whole, even if departmental collections exist or books are paid for by departmental appropriations. Professors can be of great help in classifying books but the responsibility belongs to the librarian. To do his work well he needs tools which should be at his hand. For cataloging he needs volumes which are to be found in every trained librarian's office. The condition of the catalog and of the cataloging room will inform an observer at once of the condition of things. The system whereby the books are catalogued is significant. The great libraries and the progressive small libraries which expect to grow are using that of the Library of Congress.

Active cooperation with other libraries appears in the records of exchanges kept by the librarian. Interesting evidence of the scholarly activities of students and teachers as well as the resources of the local library can be found. The number of borrowings from the Library of Congress and

[11] Page 67.

other great libraries, the names of the persons for whom the loans were secured, the kinds of material are informing. In the university president's report will sometimes be found a statement of exchanges. It is important to note also the loans to other institutions and whatever indication of strength may be therein. While this applies especially to the university it is also more and more true of colleges as their teachers engage in research and as the special collections in college libraries become known to researchers elsewhere.

In the stacks while one is reading the shelves for purposes above described, it is possible to study the extent to which books are used. Notice the condition of individual bindings. Examine the card in the pocket on the inside back cover, if there is one. Frequently I have picked out a book significant in current thought and examined its card to see how often the book has been used and who used it. Sometimes I have been disappointed to find the record meager. Sometimes the recurrence of a student's name on the cards of significant books has enabled me later in the day to startle a dean or a professor by mentioning the intellectual interests of some particular student. I used to watch the cards in the pockets of books of the University of Chicago library in hope of discovering some intellectual initiative on the part of my students. I was never disappointed and I was always able to make the information count in teaching.

The importance of facilitating the use of books by students and teachers is recognized by the associations in requiring that the library be "professionally administered." For many years the college library was a refuge for superannuated employees of other departments. The elderly professor of Greek who had not enough work to keep him busy, the disabled editor of a denominational journal, the retired loyal alumnus resident in the community, and persons who, like ancient officers in the army, thought that any man could do anything he was ordered to do, have been responsible for most of the failures in the college library. In one college with small funds I found a librarian, whose collection lacked many necessary items, buying publishers' remainders in lots,

without knowing what titles were to be included by the bookseller. He was not professionally trained. In another institution I discovered that periodicals were being bound in expensive half-morocco, and that this was one reason why essential books could not be bought. If the librarian had been trained he would have known not only the economy but the superior service which buckram gives. The library in which all books in the main reading room were behind locked doors was managed by an untrained person. The college librarian who when asked what dictionaries were in the library handed me an abridged student's dictionary, who was surprised when by searching I found the Century, and who had never heard of the New English Dictionary, was untrained. The librarian who had arranged his books conveniently to his desk on the basis of twenty years' personal experience in answering calls for them and had broken up his shelving so irregularly that if he had been incapacitated by an automobile accident no one, literally no one, would have known how to find books in his library had had no professional training. In all of these cases, perhaps it is unnecessary to add, the colleges have not yet satisfied the Association of American Universities that their libraries are "professionally administered."

The trained librarian has the same ingenuity in making the best of his equipment that marks the trained professor of physics. If a professional librarian helps to plan a building he is likely to remember the need for a freight entrance of convenient size and accessibility; he will demand space for periodicals; he will place his stacks where they can be effective for all users of them; he will plan his reading room from the point of view of its uses. The trained librarian will develop the character of his book collection. While emphasizing always the service to teachers and students he will discover the value of special collections, care for them and make them accessible. At West Point a trained librarian has revealed an important and hitherto neglected mass of early American newspapers. The trained librarian knows the problems of book selection, classification, cataloguing, circulation. The

trained librarian, utterly unlike the ancient caretaker who used to regard the library as a personal possession and who resented the intrusion of readers, seeks to serve, invents ways to induce people to use the books. He provides posters, issues bulletins on new books, bibliographies on special subjects. Alert in feeling current interest in things he posts clippings, pictures, suggestions for related reading.

Even the high schools, encouraged by the North Central Association and the American Library Association, are seeking to find trained librarians. The kind of librarian sought is "someone who combines the knowledge of books and library technique with sufficient knowledge of educational methods to make the library an integral part of the school's educational scheme and not an appendage or an extra curriculum activity." Such a librarian, it is suggested, should have at least four years of college training including 75 semester hours of general subjects, 15 hours of education and 30 hours of library training. The training of college librarians is described by Dr. Works[13] and Mr. Wyer.[14]

The college librarian is primarily an administrator, not a scholar, but none the less an educator. He makes the library useful and urges its use by cooperating with the instructional staff in courses which explain the resources of this important tool. He is immensely important as an aid in bibliography—even more so in the college than in the university. In addition to such direct teaching of students and helping of teachers, he encourages general cultural reading. Some presidents and deans, moreover, will be surprised to find how effective the librarian can be as a personnel officer. Personnel administration is most effective when all administrators and instructors are imbued with the personnel point of view and alert to use its various methods. I remember with pleasure an hour in the library of the University of Richmond when the librarian thought she was showing the resources of the library but when she was also demonstrating

[13] Page 90.

[14] J. I. Wyer: "The College and University Library: Manuals of Library Economy." No. 4, 1921. Pp. 9, 24.

the point I am making now. As student after student conferred with her at her desk or as she moved about the reading room to induce their frank and friendly resort to her for suggestions on the work in hand, she unconsciously exhibited to me a very specific and full knowledge of each individual's special interests, ambitions, family history and other matters a dean must know about. I suggest that the college dean will find in the librarian as in the professors and registrar and health officer and Y. M. C. A. officials a colleague possessed of data important in the guidance of men and women. What is true of the high school is true even more of the college, the library is "an integral part of the educational scheme." The trained librarian can make it so.

Such professionally trained librarians with such libraries as those I have described are expensive. The college budget is a matter which still needs a word. "A definite annual appropriation for the purchase of new books" is the usual demand. The North Central Association adds: "and current periodicals. It is urged that such appropriation be at least $5 per student." Probably this amount was set because of the former practice of charging a $5 library fee. Marginal interests have usually been supported in this way Fees for hospital, gymnasium, natatorium, laboratory, laboratory materials, general lectures, athletics, student publications, student unions, have been collected. In time the enterprises which proved their value became a college responsibility and were included in a single fee charged for tuition and all other matters. Of the four hundred colleges and universities described in "American Universities and Colleges" only 30 specify a library fee. This ranges from $2 to $15 and is commonly $5. The per capita expenditure in Minnesota colleges reported by Dr. R. L. Kelly is as follows: St. Catherine's, $14.59; St. John's, $13.88; St. Mary's, $12.17; St. Teresa's, $10.96; Concordia, $9.58; St. Benedict, $8.65; Carleton, $7.30; Hamline, $3.94; St. Olaf, $3.51. In "Libraries," Vol. 31, p. 151, Patton of Carleton reports an average of $10 a student, $120 a teacher. W. P. Lewis at the New England College Library meeting (reported

in "Library Journal," Vol. 51, p. 576), declared that fourteen New England colleges averaged $9.39 a student and $105 a teacher. Betty H. Pritchett of Coe College found that 27 middle western colleges spend $4.87 a student and $75.80 a teacher. Marion J. Ewing of Pomona College reported in May, 1925, that six Congregational colleges averaged $8.46. Karl T. Jacobson[13] found the per capita expenditure to vary from $2.62 to $270.77 and the percentage of the total college expenditures to vary from 1.19 to 8.16.

What should be the percentage of the college budget devoted to the library depends on the condition of the library to begin with and on other factors. The variables are so numerous that one can offer no suggestion. One can say, however, that the importance of the college budget is now generally recognized, thanks especially to the influence of the work of Mr. Trevor Arnett and his important book, "College and University Finance." In making up the budget and in controlling expenditures there is more and more recognition of the importance of not leaving the library until after the stadium is cared for, although one college, not yet on the approved list of the Association of American Universities, advertises a million dollar recreation building containing three gymnasiums, a swimming pool, squash courts, bowling alleys and a golf course, and possesses a library containing 7,500 volumes!

Funds for the purchase of books have been derived from fines for the misuse of library privileges. The sum levied for not returning a book when due is so petty that it has become in many places like the fine collected from rich drivers of fast motor cars—a license to violate the law. Because of the smallness of the income so derived and because of the moral problem indicated, many colleges have abandoned this source of revenue and have instituted another kind of punishment—a limitation of privileges. In some colleges literary societies have devoted to the purchase of library books all fines levied for unparliamentary conduct. President Pell of Converse College has amusing stories to tell of such use of

[13] K. T. Jacobson: "Mid-West College Library Budgets." *Library Journal*, Mar. 15, 1928, p. 263.

the chairman's power in the literary society to which he belonged at the University of North Carolina. On one occasion a collision between a persistent member and an equally persistent chairman resulted in a fine of $32 which bought library books. Sometimes these literary societies have built up libraries of their own, which later they have given to the college library. Sometimes they subscribed for magazines to be placed in the general reading room. One proved the enlightenment of its youthful membership by subscribing seventy years ago for the New English Dictionary and keeping up the subscription until the great work was completed in the present year. At Howard College in Birmingham, President Dawson has found another source for new books. He has developed an interesting cooperation between the college and one of the Birmingham newspapers. The journal turns over to President Dawson all books received for review. These are assigned to appropriate members of the staff who are glad to read the new books in their fields and to express their opinions of them. Once a week the college manages the literary page, publishing these reviews. The volumes ultimately are deposited in the college library. Gifts from alumni and friends are not always such an embarrassment as I mentioned earlier. One college has built up a great collection by seeking legacies of books on the ground that even the poorest collection usually has in it a useful book or two and the rest can be used for exchange. In these days when many book readers in their flight from apartment to apartment find books a burden and are inclined to agree with the author of "Erewhon" who held that the only ones necessary to own were "Bradshaw" and the "Post Office Directory," perhaps some other college can equal the success of this one. Such ways of securing books, however, must always be less satisfactory than the general practice of including in the college budget a liberal item for the purchase of books and periodicals and for the professional administration which makes them useful.

A final word about finance should emphasize the need for expending a larger proportion of the library appropriation for administration. It is easier to get money for books than

for service. The increase in the number of books makes necessary more effective methods of making them useful. The college library hardly ever spends as much for service as for books. Dr. Works in his Table H shows that universities and colleges during a five-year period have spent a fairly constant proportion of their library funds on facilitating the use of their resources. The University of North Carolina and the State University of Iowa spend less than half on service, 46.6 per cent and 34.4 per cent respectively. Oberlin spends 72 per cent on service; Rutgers 72 per cent; Cincinnati, 62 per cent; Vassar, 61.9 per cent; Yale, 61.5 per cent; Stanford, 61.5 per cent; Columbia, 61.2 per cent. The public library always has to spend more for administration than for books. The colleges are only just beginning to see what this means.

There are many things about a college library which can be settled only when we have decided what a college library is for. The much discussed problem of duplicates is an example. Shall the college buy large numbers of duplicate copies for the use of students at a particular instant? It is recognized that duplicates do not add to the permanent strength of a collection. Are they rather to be regarded as laboratory materials to be secured from a departmental stock room which in this case might be the general library, a special local library or the college book store, or something like the Central Library of London? The answer must arise from the policy of college libraries and especially that of the particular institution in question.

The influence of the recently established policy of providing free textbooks in the public schools is visible now in the college. It is not merely because an institution like Hunter College provides free textbooks for students; it is because students who have had free textbooks in the public schools have come to expect as much in college. In entering college the students have come to an institution in which textbook conning has given way to the study of many sources. Still the free book idea carries over and the colleges have tried to concede by offering duplicates of the many books the student must use. It has not always been so. The eighteenth

century, it has been said, was the period of private libraries, the nineteenth that of public libraries. One might add that thus far the twentieth seems to be that of the popular magazine and the library of a chain drug store. But need we of the college thus relieve the student of any chance to form his own library? Have we not rather a responsibility to teach him both to use college and public libraries for his own progress and pleasure and to surround himself with his own books? The people of Minnesota seem to think there is such an opportunity for the schools. The Minnesota syllabus mentions the student's personal library for grade eleven. At Yale Mr. Keogh has encouraged exhibition of treasures possessed by students. The first exhibition included some very rare and valuable volumes, for a number of Yale undergraduates showed themselves already to be bibliophiles. Persons who demand real books promptly may justify the existence of a first rate book shop in their neighborhood. The presence of such a place in a college community is an excellent sign. Universities and colleges will be stimulated if they know the cultural effect of Professor Howard M. Jones' bookshop, "The Bull's Head," in the University of North Carolina.

Who can measure the influence of accessibility to a great collection of books? A university, said Carlyle, is a collection of books. Addressing a meeting of an English educational association in 1927 the Hon. Stanley Baldwin dwelt upon the meaning of books in his boyhood. "When I look back on those far distant years I think I can recognize my own good fortune, which may have been shared by many here. I was left to myself to find my own provender in the library. If you do that with a child he will always take the nourishment that is suitable to him. You may leave the child in any library you like, and if that child has the right turn for books he will take the right sustenance and thrive on it." I remember an experience of my sophomore year at the University of Chicago. A half dozen of us —curiously enough we all became college professors—used to meet on the top floor of our oldest dormitory, in Charlie Huston's room. It had the only real fireplace in Snell Hall.

To feed it we used to carry coal from Lake Avenue, a mile away, one man on one side of a half bushel basket and one on the other. In Huston's room the cannel coal burned cheerfully in the gloom which closed in on a student lamp with green shade. Before the fire we sat and smoked. We smoked churchwarden pipes like those depicted in eighteenth century prints; and in them we burned Latakia, which we took from a white labeled tin, because Thackeray smoked Latakia. And while we smoked and peered into the fire, one by the green shaded lamp read to the others. We read good books drawn from the University library. Each rejoiced in the discovery of something to share with his fellows. One night Charlie Huston brought from the library *Blackwood's Magazine* for November, 1898, and said: "Here's something I think is good. Suppose we take turns in reading it." So that group of romantic sophomores in the gloom which wavered about the grate fire, smoked Latakia in their long stemmed clay pipes and heard for the first time a story called "Youth" by an unknown man named Joseph Conrad.

In spite of things I hear about this generation of students I believe they too are finding and enjoying new writers. If their college library gives them the opportunity they can be happy. It need not be so lavish a provision as the Farnsworth Room in the Widener Library or the Upson Room in the University of Minnesota. It may be a special alcove like that very touching Metcalf collection in the University of Richmond to which a father has given real personality by selecting for it from year to year those books which he thinks his son would have enjoyed if he had lived. Give the college student a chance to use books. Give him access to a suitable collection, if not a great one, of live, well distributed volumes bearing specifically on the subjects taught and by providing professional administration, generously supported, help him to enjoy books. Then the library will become a genuine center of the intellectual life of the institution. And even more than ever, anybody, the parent of a prospective student or the agent of a regional association, can measure a college by its library.

DAVID A. ROBERTSON.

Curriculum Revision at Columbia College[1]

THE year 1927-1928 has been occupied not merely with the routine work of administration, and with carrying forward projects already initiated, but to a greater degree than any year for the last two decades with establishing and organizing new enterprises that bid fair to be of far-reaching importance in the development of Columbia College.

In my report for the year 1926–1927 two suggestions were made looking to a more effective organization of the collegiate work. I refer to the proposed survey of the various agencies in the college which have to do with the individual student outside the classroom, and to the proposal that the curriculum of the college be studied, with a view to its reorganization.

Early in the Winter Session the Committee on Instruction authorized the appointment of a committee consisting of Professor J. J. Coss, Chairman; Professor Fife and Mr. Kendall Wissiger of the Southern Bell Telephone Company, who were requested to make a study and report of the work of the various offices having to do with the student in his extra-curriculum interests. This committee called for reports from thirty-one officers of the college, followed by personal interviews with most of them. Those in charge of the athletic and non-athletic extra-curriculum activities, those responsible for the housing and feeding of our students both on college grounds and elsewhere, the various advisers and assistants to the Dean, those interested in the development of religious work, those responsible for the financial side of things, those concerned with the care and maintenance of our material equipment, as well as various other officers whose interests are more remotely related to the student body as members of our social and economic community were included in this list.

The survey was most carefully planned, about two months

[1] From the Report of the Dean for 1927-28.

being taken for its preparation. The report included fifty-four items, some of which contained suggestions for the immediate modification and coordination of our work, others of which look far into the future for their completion. Of these fifty-four items nearly half were immediately adopted and put into operation. Many of the others either make heavier demands upon the budget than we are at present able to meet, or require more than one year for their complete inauguration. The report, however, will remain for some time to come one of the documents which will bear reading and rereading in order that its sane and constructive plan for a proper coordination of the work surveyed may be kept in mind. Only a negligible number of the suggestions seemed to the Committee on Instruction, to whom the report was made, as either undesirable or impractical. It would not be appropriate at this time even to summarize the recommendations. Suffice it to say that their significance and importance will be felt for many years to come in the more effective functioning of the college.

At the first meeting of the Committee on Instruction held in October, 1927, the desirability of a complete revision and overhauling of the curriculum of the college was agreed upon as the most important work of the year. The committee recognized that the revision of a college curriculum usually involves a long and strenuous altercation between individuals, departments, and interests of various kinds. The committee felt that it would be very desirable to avoid the kind of controversy which produces a maximum of heat and a minimum of light, and which leaves a faculty divided by differences requiring years to reconcile. To this end it was decided not to conduct the study through the medium of formal faculty meetings, and not to carry it forward on principles of deductive reasoning from educational principles. The reasons for this decision lie in the fact that few educational principles are established with sufficient clearness to afford a basis for a united approach by a college faculty to our collegiate problems. Nevertheless, when an individual has once taken a certain position in regard to a principle, however nebulous

it may be, it is very difficult to withdraw from that position without apparent defeat, a sensation which no one enjoys. Few of us can completely disassociate a desire to have our own way from a desire to bring about a result which will be to the best interest of our group.

In the light of these considerations the Committee on Instruction decided to ask a group of six members of the staff to meet and discuss the curriculum, and to report their findings to them. This committee consisted of two members of the Committee on Instruction, Professor A. L. Jones and the Dean, and three other members of the staff of the College, Professor H. W. Farwell, Professor E. E. Neff and Mr. D. C. Minor, the last of whom was a recent graduate. A sixth member, Professor E. S. Evenden, was added from the staff of Teachers College, and contributed most effectively to the work of the committee from the point of view represented by that school of the University. In several other institutions similar studies have been accompanied by extensive reports by committees of the student body elaborating their point of view in regard to curriculum matters. It was our wish not to stimulate the students to make such a report, but to have the advantage of the helpful points of view that might be gained from an intimate contact with the students themselves. For this reason the committee selected the recent graduate as one of its members.

The point of departure for the study was found in an examination of the fields of concentration of the juniors and seniors. As a result of an extensive statistical study it turned out that although many of our students were devoting themselves to a thorough and carefully wrought out program of work, altogether too large a number were content to take a good freshman year followed by what amounts to three sophomore years consisting largely of elementary work. This situation was possible on account of the fact that in many of the departments of study the sequential requirement for the degree was sequential only in name. It soon appeared, however, that a study of the curriculum of the last two years inevitably entailed a careful scrutiny of

the first two years, with particular reference to the work of pre-professional students. Consequently the committee, which though specifically called upon to make suggestions for a reorganization of the work of the junior and senior years, found itself obliged to consider the entire curriculum of the college.

After prolonged conferences, in which the problem was approached not as an elaboration of educational principles but from the pragmatic point of view of what would work effectively in affording each individual a good collegiate education, certain proposals emerged. A number of largely attended smokers, open to the entire staff, were held at which these proposals were presented—not as resolutions which someone was trying to get through or to which the committee was definitely committed and for which it proposed to stand, but as tentative suggestions on which criticism was invited. Scores of conferences with various departmental officers followed, until finally the Committee on the Curriculum reported their findings to the Committee on Instruction. This committee formulated resolutions for presentation to the faculty of the college at its April meeting, which was the first faculty meeting of the year. Apart from a discussion upon an amendment to one of the resolutions, which was finally rejected by a slight margin, the eleven resolutions presented by the Committee on Instruction were passed almost unanimously and practically without debate, a result which seemed to justify the conference method of going at the problem.

Now that the amendments to the curriculum have been authorized by the faculty it is easy to formulate principles which they illustrate, and to state the advantages both to students and to staff which will accompany the new régime. The new curriculum recognizes the fact that there are three types of students, each one of which is worthy and on each one of which the degrees of the college will gladly be conferred upon the completion of the requirements for the degree. In the first place there is the student who is looking forward to a professional school and who is pointing his entire college

work toward a broad and comprehensive preparation for a life of professional usefulness. Closely related to this type is the student who by temperament and ambition is a scholar, and for whom the most effective college course is the one which gives him the opportunity to go far toward the bottom of some field of scholarly interest. There is also the man whose best intellectual development is not obtained through research work or even through "search" work of the kind encouraged by seminars and intensive attention to the cultivation of a narrow field.

In the opinion of the committee, any assumption that the students to whom we wish to give our degree are all embryo scholars who should be tested by a comprehensive examination, on a narrow field of scholarship, is unwarranted. A plan for Columbia College based on this assumption would surely result in a gradual softening of the final examination, rendering it of slight educational significance to the alleged specialist and lowering the standard of accomplishment for the genuine scholars. The administrative device which has been adopted automatically to take care of these various types of students consists in the requirement for the degree of sixty so-called maturity credits. It would scarcely be possible in this report to explain the technique by which this device is expected to accomplish the result which I have mentioned. It will require a few years of experience to determine with assurance whether the plan proposed will be completely effective. It is desirable at this point merely to point out the aim of the committee and to express the hope that the means adopted will be effective for that end.

Closely connected with the question of concentration in the two latter years, with its bearing upon the various types of students to whom we wish to present a college course, is the preliminary program of the freshman and sophomore years. In previous reports the statement has frequently been made that the first two years of college are preeminently opportunities for the discovery of the mind and of the vital motivation of each student both to himself and to his instructors. The solution of the problem of the first two col-

legiate years hinges upon the organization of a program permitting the student to make a wide survey of various fields of intellectual interests, in order that he may determine the directions which he should finally take. To this end it is necessary that these years should offer material in various fields which will simultaneously provide a sound and broad basis for future scholarly work in any field which the student may select, and a sufficient survey and orientation in these various fields for the individual who does not intend to pursue them further.

The analysis of this twofold aim so far as it had to do with the historical and social sciences has led to a surprising and remarkable result. In the first place the departments of Economics, Government, History, Philosophy, Psychology and Sociology in Columbia College have reached such a degree of mutual understanding that they are able to envisage their problem not in terms of the vested interests of the several departments, but in terms of education of young men. In fact, members of the staff of the college in these departments are pooling their interests to such an extent that one scarcely realizes that they are representing this or that department. One merely observes that they are representing the interests of a broad and useful education. After prolonged conference it turned out that this section of our staff felt that by an extension of the required course in Contemporary Civilization through the freshman and the sophomore years they could simultaneously serve both the interests of the prospective scholar who would specialize in some one of these departments, and also the general student whose intellectual interests lie in other fields. No other course in any of these departments will be offered to freshmen or sophomores. All courses offered by these departments in the two upper years will be built upon Contemporary Civilization A and B, and in these advanced courses a student will have the opportunity to carry his specialized work to any extent that his talents and desires permit.

A similar situation faced the scientific departments, and they are meeting it in a slightly different manner, probably

more appropriate to the subject matter involved. This entails the organization of a number of courses in science aimed at the man who does not propose to go into medicine or engineering, or to become a zoologist or a physicist, but who wishes to know what these subjects are about and what place they occupy in the thought of the world of today. Parallel with these general courses which will be open to freshmen and to sophomores, the more intensive and thorough scientific courses in each of these departments will be offered as at present.

In the third grand division of departments, comprising the languages—both ancient and modern—fine arts, and music, little change was made in the requirements for the degree. The discussions held at the staff meetings indicated that the level of accomplishment attained by students who have passed successfully three or four years of a modern language is not too high for the needs of those who would use that language in their other academic work. It is also apparent that this amount of language study is necessary in order to afford a student an introduction to the literature and life of foreign civilizations.

A further evidence of the desire of the faculty to treat subjects of study, rather than narrow departmental fields, is evident in the authorization of so-called reading courses. In the new curriculum the honors courses which for the past eight or ten years have led to the degree with General Honors are withdrawn, in view of the plan to substitute for this type of honors work, departmental honors gained through the medium of seminar work. At the same time the experience both of instructors and students with the method of conducting the honors courses has been so stimulating and productive of scholarly results that it seems desirable not to give up the fruits of that experience. Consequently the Committee on Instruction is authorized to announce courses which should be given jointly by two or more instructors in different departments to a small number of acceptable students of high grade. If, for example, a professor of medieval history and a professor of scholastic philosophy

should choose to present an extensive list of readings to students interested in that field they might be authorized to do so. Such courses would meet normally at least once a week, probably in the evening and preferably in surroundings where the atmosphere of a classroom would not serve as a deterrent to free discussion and comfortable posture. By this means the student would have an opportunity to discuss far into the night various aspects of the reading assigned for the week with two or more scholars who approach the subject from slightly different points of view. Such courses would usually be free from lectures, and would serve to stimulate appetite and technique for obtaining a broad and at the same time an intensive knowledge of an important subject. It is not anticipated that there would be more than half a dozen such courses offered at first, partly on account of the difficulties in the way of providing a staff for this sort of instruction since somewhat the same type of professor is needed for this kind of course as for the advanced seminar work.

Another experiment was authorized by the faculty which it is possible to announce in language that leaves one in doubt as to its educational value, but which can be explained in more favorable terms. I refer to the so-called lecture courses which may be sparingly authorized by the Committee on Instruction in fields adapted to this method of presentation. Everyone realizes that the greatest inspiration gained from certain members of the staff is through their ability as expositors. It is becoming trite to remark that the only education which amounts to anything is that which comes from the activities of the boy himself rather than from the teacher. Nowadays college administrators are almost unanimous in their feeling that students should work more and instructors less. At the same time, teal teaching consists in pointing out relations between aspects of a subject which an inexperienced youth would not be likely to observe or to view in proper perspective. There is no doubt that it is possible to obtain a most stimulating and broadening survey of a subject in which one does not have time to do

intensive work. Even if one is not particularly interested in a certain field of study it is abundantly worth while for the young man who is just starting his career to hear a master of the subject give the result of his lifetime of research and reflection in broad outlines.

The lecture courses referred to will normally occupy two hours a week, and will afford half credit toward the degree. That is to say, two hours of lecture will count as one point toward the degree, on the understanding that attendance only is required, examinations, quizzes, and required reading being entirely left out of the picture. One of the most obvious advantages of a course of this kind is for the junior, or more particularly the senior, who is principally occupied in a narrow field of intensive work but who wishes to gain a rich but rapid survey of some other field either related to his own or in contrast with it. For example, the student whose major work is in science might well find abundant profit in listening to lectures on the structure of our government, even though he might not have time to take a full course involving the usual preparation. A student whose particular interest is in the economic development of our modern society might well find it useful to attend lectures on the civilization of the Far East. It should be emphasized that these courses will be few in number, and will be offered only on the joint recommendation and approval of the instructor, the department, and the Committee on Instruction.

The Committee on the Curriculum studied carefully the ways and means of meeting the requirements of the courses prescribed for the degree. In this connection the faculty authorized the Committee on Instruction to appoint a committee on achievement tests who should have in their hands the administration of tests on the basis of which properly qualified students might be excused from the various requirements for the degree. It goes without saying that a requirement waived in this manner would not count as points credit toward the degree, but would merely relieve the student of the necessity of sitting through a course in

which he was able to demonstrate his competency. It is hoped that this enterprise may be expanded, to the end that students may be stimulated to anticipate by their own reading and reflection the more elementary courses in a variety of departments, in order that they may be brought speedily into contact with work of a more difficult and advanced character.

Although the resolutions passed by the faculty do not on their face seem to affect fundamentally the nature and arrangement of the courses offered by the various departments, it is clear upon a little reflection that the changes are much more fundamental than is at first apparent. In order to build upon the work of the first two years advanced courses which may properly bear maturity credit and which will possess genuine sequential character, most of the departments will need to reorganize their offering in a very thorough-going manner. This work of departmental reorganization is the important task for the coming year. It ought to result in the elimination of a considerable number of courses, the consolidation of others, and an evaluation of the place that each course occupies in the entire scheme. With the main outlines and structure of the curriculum established by the action that has already been taken, this work can be taken up definitely and with a reasonable prospect of a successful outcome.

There is no question that the revision of the curriculum here outlined will greatly enrich the cultural value of the college course. Columbia College will probably be a much better college than it has been. This, however, does not tell the whole story. We want the college not merely to be one which commands the respect of its students and staff, but we want it to inspire their affection. One does not love quality; an individual or an institution that is merely good does not necessarily possess the warmth and the spiritual qualities that cause one to love it. This can only be accomplished through the medium of personality and the material evidence of a sympathetic and friendly attitude. The great problem before Columbia College in the years

immediately before us is to supplement its excellence by the efforts of all who have responsibility for the physical comfort of student and teacher in dormitories, offices, classroom, fraternity house, and athletic field. These are the media through which loyalty and affection can be stimulated more than through the formal work of the recitation room or the lecture hall. It is not merely a matter of money, although money is necessary in order to provide and maintain the right atmosphere in the institution. It comes back to an appreciation on the part of administrators, teachers and alumni that the college residence is a period of training for young men who have not only minds but also bodies and spirits, alive to every kind of fine influence.

HERBERT E. HAWKES,
Columbia University.

Impersonal Measurement of Teaching[1]

THE teaching efficiency of any instructor may be considered to vary directly with the desirable changes produced in the students by his teaching. Measurement of the improvement of the students requires: First, the use of tests of mental alertness to ascertain the ability of the student to learn; and second, tests to indicate how much the student knows about the subject at the beginning of instruction. Having thus appraised the mental condition of the student at the beginning, a comparable appraisal at the end of the period gives evidence as to what desirable changes have been wrought by the instruction.

In order to test the feasibility of this proposal as a measure of teaching efficiency the Association of Land Grant Colleges undertook the following experiment with cooperation of the chemistry instructors in twenty-eight of the Land-Grant colleges. The subject of general chemistry, as taught in the first year of college, was chosen because it would involve a relatively large number of students. Also since the first step in the study was the construction of an objective measuring device, chemistry was advantageous in that it is a subject well adapted to objective tests of the short-answer type, thus making it possible to cover a large amount of subject matter in a relatively short examination period.

The experiment consisted in giving to all the students of the instructors taking part the same standardized test at the end of the year's course in chemistry. This has been done for two consecutive years. Arrangements have already been made to continue the study for another year, extending it to cover economics and organic chemistry instead of general chemistry.

The test used in this study was a general chemistry test.

[1] Report presented to the Association of Land Grant Colleges, Washington, D. C., Nov. 16, 1928.

The content of the test[2] was determined by an analysis of books most commonly used in chemistry classes. It was designed to cover the following subjects: (1) Elements and compounds, (*a*) history, (*b*) occurrence, (*c*) physical properties, (*d*) chemical properties, (*e*) uses, (*f*) laboratory preparation, (*g*) commercial preparation; (2) Principles; (3) Formulas; (4) Equations; and (5) Problems.

I. DISTRIBUTION OF SCORES AND NORMS ON THE TEST

The test was given to 6,667 students in 28 institutions at the end of the first year of college chemistry. The median or middle score of all cases was 63, with a possible maximum of 150. Figure 1 shows the distribution of scores. The line marked Q_1 divides the lower quarter of the group from the rest of the distribution. One-fourth of the students make a score of 44.87 and below, three-fourths make above 44.87. The Median line (63) divides the group in half, one-half the students falling below that score and one-half above. The

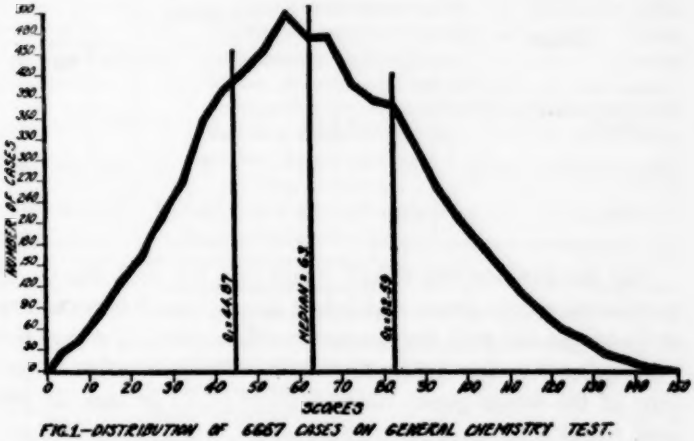

FIG. 1.—DISTRIBUTION OF 6667 CASES ON GENERAL CHEMISTRY TEST.

[2]The test on general chemistry was prepared by Dr. F. A. Moss W. M. Loman, W. Middleton, and H. F. Hubbard. The tests were scored and the data tabulated in the Psychology laboratory of George Washington University. Funds for carrying on the study were made available through the American Council on Education.

Q_3 line divides the upper quarter of the group from the rest of the distribution. Tables 1 and 2 give the norms or standards on the test, based on the scores of the 6,667 cases.

TABLE 1.—*Median Scores and Semi-Interquartile Range*

	No. Cases	*Median*	*Q*
Those having had 1 year high school chemestry and 1 year college chemistry.....	3079	73	18.9
Those having had 1 year college chemistry (no high school chemistry)	3588	56	16.4
Total (both groups together).....	6667	63	18.8

TABLE 2.—*Percentile Scores*

Groups	*Percentiles*									
	5	10	15	20	25	30	35	40	45	50
One year college and high school.....	29	38	45	50	54	58	62	66	69	73
One year college only.....	18	25	31	36	39	42	46	49	52	56
Total.....	22	30	36	41	45	49	52	56	59	63

Groups	*Percentiles*								
	55	60	65	70	75	80	85	90	95
One year college and high school.....	77	80	84	88	92	97	103	109	117
One year college only...	59	62	65	68	72	76	82	89	98
Total.....	66	70	74	78	83	87	93	100	111

The median for the whole group was 63, and the Q, or number of points above and below the median it is necessary to go to get one-half the cases, was 18.8 Table 2 shows the percentiles for the different groups. For examples, 5 per cent of the whole group made a score of 22 or less, 25 per cent made a score of 45 or less, while the scores of 95 per cent of the cases were below 112. The tables also show the difference between those who had had chemistry in high school and those who had not.

Reliability of the test.—The reliability of the test, that is, the amount of agreement between results secured from two

or more applications of the test to the same students by the same examiner, is indicated by the reliability coefficient of .90.

Validity of the test.—The validity of the test or the extent to which the test measures knowledge of general chemistry is indicated by the fact that the chemistry test scores correlate .638 with the chemistry grades assigned by the instructors.

II. COMPARISON OF TWENTY-EIGHT LAND GRANT COLLEGES IN RAW SCORES ON THE CHEMISTRY TEST

The test was given at the close of the school year in twenty-eight different Land-Grant colleges. The test was admin-

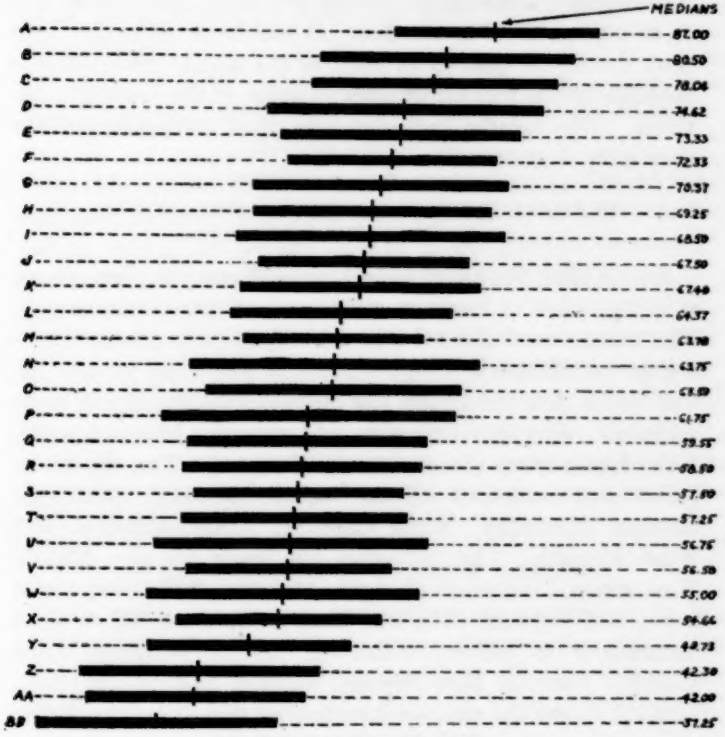

FIG. 2.—RANGE OF SCORES AND MEDIANS

istered under standard conditions in each instance, the same time being allowed and the same directions being given in each institution. Figure 2 shows the relative standing of these twenty-eight colleges. The length of each bar in the figure represents the range of scores which includes the middle 50 per cent of students in each college. The right end of each bar represents the point above which the upper quarter of students falls, and the left end of each bar represents the point below which the lower quarter falls. The line across each bar indicates the median score for each institution.

The twenty-eight institutions differed very markedly in the average amount of chemistry which their students know. The median scores range from as low as 37.25 in one college to as high as 87.00 in another. It will be noted in the chart that the lowest quarter in some of the higher institutions is superior to the highest quarter in some of the lower institutions. This clearly indicates the great inequality of the chemistry departments.

III. COMPARISONS OF SECTIONS OF THE COUNTRY IN CHEMISTRY ACHIEVEMENT

By dividing the twenty-eight institutions into four groups it was possible to compare different sections of the country. The schools were divided into a *North Atlantic* group, *Southern* group, *Middle West* group, and a *Far West* group. In the North Atlantic group the following seven schools were included: Cornell, Delaware, Maryland, Massachusetts, New Hampshire, Pennsylvania, Rutgers. The Southern group was composed of the seven following: Alabama, Georgia, Kentucky, North Carolina, Texas, Virginia, and West Virginia. The following six made up the Middle West group: Arkansas, Kansas, Missouri, Nebraska, Oklahoma, and Purdue. The Far West group consisted of eight institutions as follows: Arizona, Idaho, Montana (two schools), Nevada, New Mexico, Oregon, and Washington. Table 3 shows the relative standing of these sections of the country as indicated by chemistry scores.

TABLE 3.—*Comparison of Different Sections of the Country in Raw Scores on Chemistry Test*

Section of the country	Median score	Q_1	Q_3	Q	Number cases
North Atlantic	70	52	90	19	1613
Southern	59	41	78	18.5	1984
Middle West	56	39	74	17	1730
Far West	70	51	88	18.5	1340

The sectional differences are interesting. The North Atlantic and Far West both have the high median score of 70. These sections make a distinctly better showing than the other sections.

IV. COMPARISON OF THOSE WHO HAVE HAD CHEMISTRY IN HIGH SCHOOL WITH THOSE WHO HAVE HAD NO HIGH SCHOOL CHEMISTRY

As indicated in Tables 1 and 2, approximately half of the students included in the study had chemistry in high school before taking the college course. The average chemistry test score of those who had had high school chemistry is 17 points above the average score of those who had not had high school chemistry. As will be shown in subsequent sections of the report, this item is of considerable importance, and it will partially explain the relatively poor showing of the colleges in those sections of the country where chemistry is not generally given in high school. In estimating teaching efficiency, care was taken to correct the raw scores for high school chemistry.

V. MEASUREMENT OF TEACHING EFFICIENCY

The efficiency of any instructor here considered to be directly proportional to the amount of knowledge gained by the students as a result of his teaching. If three instructors have classes of the same size, the same average intelligence, and the same previous training in high school chemistry, a

fair appraisal of the relative teaching efficiency of these three instructors may be made by giving their students the same objective test at the end of the year's instruction. The teacher whose students make highest scores on the test may fairly be rated as the best teacher while he whose students make lowest scores is clearly less efficient.

Owing to the fact that about half the students in this study had chemistry in high school, it is quite obvious that if an instructor has a class composed largely of such students, he will have a distinct advantage over an instructor whose students have had no high school chemistry. This makes it impossible to estimate the efficiency of teaching by the raw chemistry scores of the students. But it is easy to correct for this variable. Inasmuch as the average score of those who had high school chemistry is 17 points more than the average score of those who did not have high school chemistry, the correction was made by deducting an average of 17 points from the scores of the students who had had high school chemistry. The averages of these corrected scores are given in the eighth column of Table 4.

It is also generally recognized that some students have much more native ability or intelligence than others, and it is obvious that if an instructor happens to have a larger number of students of high intelligence, while his colleague has a class of relatively low intelligence, he whose students possess the higher intelligence will have the advantage. But this likewise can be corrected for in estimating teaching efficiency. To do this it is necessary to compute the coefficient of correlation between the scores made on the chemistry test by the students and their intelligence. Of the eleven schools used in the part of the study dealing with teaching efficiency all but two used the American Council on Education Psychological Examination. For those using the American Council Test, the correlation between chemistry test scores and the intelligence examination was .524. This would indicate that intelligence affected the chemistry scores considerably, but to be objective it is necessary to find the exact amount of influence it had. This was done

by computing the regression coefficient, and this showed that a change of one point in intelligence affected the chemistry score by .32. For example, if an instructor's class was 1.0 point above the average for all instructors' classes in intelligence, then his chemistry median should be penalized .32 to correct for the superior intelligence, and conversely, if his students were 1.0 point below the average in intelligence he would have .32 added to his chemistry median. This was done and the ninth column in Table 4 shows the finally corrected chemistry medians. These corrected medians give relative efficiency measures of the instructors in chemistry.

TABLE 4.—*Comparison of Efficiency of Instructors*

Instructor	Degree of Instructor	Rank of Instructor	Experience of Instructor (years)	Teaching Load (hours per week)	Intelligence Median	Chemistry Median (Uncorrected)	Chemistry Median (corrected for high school)	Chemistry Median (corrected for h. s. and intelligence.)
				College A				
A	M.S.	Instructor	2	14.5	110.4	84.0	75.5	72.27
B	Ph.D.	Asst. prof.	5	14	105.6	81.5	76.25	74.55
C	B.S.	Instructor	2	10	127.3	105	88	79.36
C	B.S.	Instructor	2	10	127.3	105	88	79.36
D	M.A.	Instructor	1	12.5	118.8	77.5	63.83	57.91
E	M.S.	Instructor	5	21	107.7	65	57	54.63
F	B.S.	Instructor	3	20	113.2	79	68	63.87
G	B.A.	Instructor	4	18	107.6	84.5	76.5	74.16
H	B.S.	Instructor	15	21	104.9	75	64	62.53
I	M.S.	Instructor	3	21	117.4	83.5	77.25	71.78
J	Ph.D.	Assoc. prof.	14	15	101.3	66.75	59.5	59.18
K	B.S.	Instructor	7	18	80	69	68	74.5
L	M.A.	Instructor	2	21	115.7	91	80	75.07
	Averages	.....	.....	.....	109.6	78.04	71.07	68.09
				College B				
A	Ph.D.	Asst. prof.	11	18	125	99	82	63
B	M.S.	Instructor	6	18	99	78	62	62
C	M.S.	Asst. prof.	4.5	20	95	73	56	59
C	M.S.	Asst. prof.	4.5	20	95	73	56	59
D	M.S.	Asst. prof.	2.5	20	86.5	61	45	54
E	M.A.	Asst. prof.	13	18	94	63.7	49	52.7
F	M.S.	Instructor	3	20	102	66	52	50
G	M.S.	Instructor	8	18	91.5	49	37	42.5
	Averages	.....	.....	.....	99	69.9	54.7	54.6

For each instructor included in the study a record like those given in Table 4 was made. The table shows the record for two typical institutions. The last column of the table contains the final figures representing relative efficiency of the instructors. By reference to this column it can be seen that the variations in efficiency of instruction within the same institution and the variations in efficiency from one institution to another are quite large. Taking all the instructors represented, the efficiencies as indicated by corrected median scores on the chemistry test range from 37 to 79.

VI. THE EFFECT OF TYPE OF DEPARTMENTAL ORGANIZATION ON TEACHING EFFICIENCY

The study revealed three common types of departmental organization. In some of the large institutions one man gave all the lectures and his assistants handled the laboratory; in other large institutions each instructor was responsible for both the didactic and laboratory work of a definite group of students; whereas in the smaller institutions, we found in many instances only one man in the department. A comparative showing of these respective types of organization is indicated in Table 5.

TABLE 5.—*Relation of Departmental Organization to Efficiency*

Type of organization	*Average efficiency shown by corrected test medians*
Large institutions One lecturer.....	46.62
Large institutions Several instructors..	55.22
Small institutions One instructor.....	48.10

VII. THE EFFECT OF SIZE OF CLASS ON TEACHING EFFICIENCY

The effect of size of class on teaching efficiency is indicated in Table 6. It should be noticed that there is a tendency for the teaching efficiency to decrease as the size of the class increases above 30 or 40.

TABLE 6.—*Relation of Number in Class to Efficiency*

Number in class	*Average efficiency shown by corrected test medians*
20 and below	71.62
21 to 40	60.16
41 to 60	49.05
61 to 80	49.52
Over 80	46.62

VIII. THE RELATION OF DEGREES, RANK, TEACHING EXPERIENCE, AND TEACHING LOAD OF THE INSTRUCTOR TO EFFICIENCY

A study was made of the relative efficiency of instructors with Ph.D. degrees and Master's degrees. There were insufficient cases with Bachelor's degrees to make a reliable comparison with this group. The average efficiency in terms of corrected chemistry medians of the students for the Ph.D. instructors was 52.62 and for the Master degree instructors was 51.91. The degree of the instructor in these cases seems to have little effect on the efficiency.

A study was next made of the relation of the rank of the instructor to teaching efficiency. This study showed average efficiencies in terms of corrected test medians as follows: Professors, 50.13; Associate Professors, 54.15; Assistant Professors, 54.26; Instructors, 54.74. In these cases there is apparently very little effect of rank on teaching efficiency. The one exception that may be noted is in the case of those with the rank of professor. There was a slight tendency for the professors to be more inefficient than either the associate professors, assistant professors, or instructors. This might be partly due to the additional duties of the professor, but is probably more to be explained by a general slowing up as indicated in the next section.

A study was also made of the relation of length of teaching experience to efficiency. The results, in terms of corrected test medians, were 55.68 for the first eleven years, and 48.82 for twelve or more years. This indicates that after eleven years there is a tendency for teaching efficiency gradually to decrease. This may be due to lack of interest on the instructor's part, or to the fact that he is out of touch with

some of the modern developments, or to the increasing physical disabilities which affect his efficiency. There are, of course, marked exceptions in individual cases; the least efficient one of those studied happens to be one who has taught only two years, and also the most efficient one happens to be an instructor who had had just two years teaching experience.

A further study was made of the relation of teaching efficiency to teaching load, teaching load being measured in the number of hours per week taught. The study shows relative averages in terms of corrected chemistry test medians as follows: Those teaching under 14 hours, 52.55; those teaching between 14 and 18 hours, 57.32; and those teaching over 18 hours, 51.64.

A reliable method of measuring teaching efficiency would make it possible to promote men for success in teaching. Success in research is objectively demonstrable by the recognition won from learned societies. Who is so successful a teacher has remained a matter of personal judgment. Objective methods of appraising teaching would undoubtedly encourage initiative and originality among teachers and stimulate them to higher proficiency.

F. A. Moss, WM. LOMAN, THELMA HUNT,
George Washington University.

Self-Survey in Urban Universities[1]

THE term "self-survey" may be defined as a study or studies by colleges themselves of themselves, either continuous or periodical in character. It may be directed by an outsider or an insider, but should be carried on by regular members of the faculty or administration who subsequently will have the responsibility of putting suggested changes into practice.

It is particularly apropos to discuss such a subject in a convention of urban universities, because permanent self-surveying organizations are likely to be more feasible in institutions represented here and others of similar size and standing although certainly not more necessary than in smaller institutions.

Colleges can helpfully and constructively study college problems only by applying to themselves the principles of scientific analysis and observation that higher education applies to the rest of the universe. With the aid of educational and vocational counselors, the better students who are about to invest time, money, and opportunity are beginning to apply principles of scientific management in the selection of their colleges and their courses. Donors and taxpayers are asking for concrete proof of the faith placed in our colleges. The public press finds that college criticism is good copy, and the very existence of the halo that has surrounded our venerable institutions seems at the present time to be endangered. Some agency in the university should take the responsibility of finding the facts and presenting them properly to the parties concerned.

Surveys of institutions and systems of higher education have been advocated and carried out in the attempt to set the house in order, but I believe you will agree with me that the reforms advocated by outside professional surveyors have had only a fighting chance of adoption and in many

[1]Address delivered at the annual meeting of the Association of Urban Universities, New York, November 16, 1928.

cases have had only a temporary salutary effect. It seems to me that the greatest barrier militating against the success of the professional survey is a psychological one. To be criticized by strangers is comparable to being forced to take bad medicine. Even though the facts be present in quantities sufficient to convince an unbiased surveyor that something is wrong, the individuals affected in the survey, consciously or unconsciously, tend to take the defensive and adopt the "show me" attitude.

Convinced that the better approach to institutional growth is through self-analysis, the trustees of the University of Pittsburgh, on the recommendation of Chancellor Bowman and Executive Secretary Gow, two years ago passed a resolution and provided a generous enabling budget to establish a Division of Research in Higher Education. The function of this division was to provide a permanent self-surveying organization which should take a constructively critical position and investigate pressing educational problems as they arose in the institution, isolate them, and, wherever possible, subject them to objective study and experimentation.

While this division is by no means the first agency established as a permanent self-surveying body, it is perhaps unique in its organization and method of conducting its work. With your permission, I shall give a brief description of it, indicating some of its methods as an example of a self-surveying body.

Starting in 1926 with a carte blanche, it was possible before deciding on definite policies to take advantage of visits to the universities of Columbia, Chicago, Purdue, Minnesota and others where research in higher education had already made some progress.

Our first step was to organize a permanent research steering committee, composed of the deans of The College, Schools of Engineering and Mines, School of Education, and School of Business Administration to advise the division on matters of general policy. The Executive Secretary of the University is chairman of this committee. Major prob-

lems are proposed to this committee before they are accepted by the Division of Research. On each problem upon which research is being conducted, a committee of faculty members and administrative officers is appointed. The members of these committees are chosen in the main from the field in which the problem originates.

As a guide to determine the function of the division, the following objectives were set up:

1. To provide means for the study of problems of the university which bear on the efficiency of the organization and the happiness of the personnel.
2. To provide student personnel service of a fact-finding nature for deans and counselors.
3. To encourage good teaching and provide means for experimentation in this field.
4. To establish a center in which information about this and other institutions may be collected and made available to the faculty and student body.
5. To encourage both private and committee research in problems of higher education by the faculty and to provide assistance wherever possible.

These guide-posts have so far proved adequate for our purpose.

Administratively, the Division of Research is a part of the office of the Executive Secretary of the University but, in sharp contrast to the function of the latter, is not responsponsible for applying the results of its work. The division carries on research; it is not an administrative body. This has proved to be a wise policy. Time and again, members of our division have been urged to put into practice a new plan suggested after the study of a certain problem, but in every case we have followed the policy of merely standing by.

Two cases will illustrate the point. One of our major problems during the past two years has been to conduct preliminary surveys for the establishment of junior college centers, one at Johnstown, one at Uniontown, and one at at Erie, Pennsylvania. After these surveys were complete, two administrative avenues were open to the university.

The easier one, perhaps, would have been to place the surveyors who were familiar with the territory in charge of each junior college center for a time until the project got under way. But our policy running counter to this proposal, the less expeditious but wiser plan of placing a permanent administrator in immediate charge was adopted. At present the university is conducting for the first year junior college centers at Uniontown and Erie, and for the second year at Johnstown with total enrolments of 432 full-time day students, and 467 late afternoon and evening students.

Another problem of considerable importance which illustrates the desirability of guarding against encroachment of administrative duties was a study of problems of educational guidance and subsequent organization of the University Personnel Council. After making several analytical studies of student personnel, it became apparent that in order to remedy certain defects which these studies brought to light, a council of personnel and service division officers[3] should be created. To serve in the capacity of Personnel Director for this group would seem to be a logical procedure if one were to combine administrative work with research duties, but it was clear that this was not a function of our division.

The members of the division have no teaching loads except such as are self-imposed as an aid to conducting the work of the division. At the present time two courses are conducted, one in College Organization and Management and one in Educational Personnel Methods. Each person enrolled undertakes a problem and is given the opportunity to work with a research committee throughout the semester. University records, facts and private library collections germane to the problems are made available.

While the Division of Research, as such, is an autonomous unit of the university, the courses offered are administratively placed in a newly formed Department of Higher Education in the School of Education. In the future, students working

[3]Service divisions include such agencies as Student Health Service, psychologist, Division of Research, etc.

with the Division of Research will take their degrees in the School of Education.

With a staff of four full-time persons and two graduate assistants, supplemented by clerical and statistical help, it is possible to give the faculty and administration help on a variety of problems.

The aim of the division is to choose problems of interest to the university as a whole rather than to further the interests of a single individual or small groups within the university. Representative among such problems may be mentioned: A location study of junior colleges; problems of student personnel; studies of foreign and second-generation students; unit cost studies; study of health and recreational facilities; university publicity; an inquiry into graduate examinations; conduct of remedial reading classes for slow readers; administration of placement examinations to 1,500 freshmen and analysis of results; studies of scholarship of athletes versus non-athletes; development of trade tests for selecting vocational teachers; and the installation of the American Council on Education Cumulative Personnel Record System. A good example of the service that a university division concerned with self-surveys can give to an institution of higher education is illustrated by the University of Pittsburgh's part in the Pennsylvania Study of the Relations between Secondary and Higher Education, under the joint auspices of the Pennsylvania College Presidents' Association, the Pennsylvania Department of Public Instruction, and the Carnegie Foundation for the Advancement of Teaching. It has been a task of considerable proportions. Under the auspices of a university committee, our division has sponsored this program in a whole-hearted manner and, in addition, has worked cooperatively with the public school system of Pittsburgh in the installation and interpretation of their part in the study. Dr. William S. Learned, Director of the Pennsylvania Study, representing the Carnegie Foundation for the Advancement of Teaching, and Dr. Ben D. Wood of Columbia University, educational adviser, will report this study in due time.

Following the success of experiments by Book,[3] Averill and Mueller,[4] E. S. Jones,[5] and Ferguson,[6] similar experiments for increasing reading ability were conducted at the University of Pittsburgh,[7] in the spring of 1928.

Two experimental classes of undergraduate probationers were conducted, each with a comparable control group. Both classes met four days per week for eight weeks during the second semester of 1928. The need for such classes was determined by the scores made on the Whipple High School and College Reading Test.

Form A was given to the experimental and control groups as an initial test, and Form B, as a final test. Specific exercises and drills upon the fundamental reading skills were given daily. Factual material, such as articles from the *Literary Digest*, mimeographed sheets of special articles, the *United States Daily* and the *Boston Transcript* were used. In the first group there were 25 persons; in the second group there were 13 persons. The per cent of improvement of the first experimental group over the control group was 57 per cent; and for the second the improvement was 31.75 per cent. The same teaching methods, testing devices, scoring and materials were used in both experiments. These experiments will soon be published in detail.

The studies of unit costs at the University of Pittsburgh have been particularly helpful in budget making. The system which we have developed makes use of Hollerith cards and is relatively inexpensive.

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[3] Book, W. F.: "The Amount of Improvement Made in Learning to Read by Four Groups of College Students." *School and Society*, August 20, 1927.

[4] Averill, L. A. and Mueller, A. P.: "The Effect of Practice on the Improvement of Silent Reading of Adults." *Jr. of Educational Research*, February, 1928.

[5] Jones, Edward S.: "Testing and Training the Inferior Freshman." University of Buffalo Studies, Volume V, April, 1927.

[6] Ferguson, Jessie: "Probation Students Under Guidance." *Educational Review*, April, 1928.

[7] French, Helen Aiken: "Increasing Reading Ability of Adults." University of Pittsburgh, 1928.

The importance of the application of scientific method in higher education is slowly being recognized, but as yet few administrators have been far-sighted enough to wish to undertake the slow painstaking and expensive procedure involved in arriving at solutions by this method. Apropos of the scientific method, we find this quotation from Forest Ray Moulton, astronomer at the University of Chicago:

"The successes of science invite attention to its method. That science depends upon observations and experiments is known to everyone, but those who have not been engaged in its pursuit cannot realize the scrupulous care with which experiments and observations are made, the faithfulness with which they are recorded, the variety of conditions under which they are repeated, and the caution with which conclusions are drawn from them. Science does not bow down before precedent or custom or dogma; it exalts the truth and honestly seeks it." To give an example, "the orbit of the moon about the earth is roughly elliptical; but it has many hundreds of minor irregularities, due to the attraction of the sun and of the equatorial bulge of the earth. The complexity of the problem is measured by the fact that Delaunay's expression for the distance, longitude, and latitude of the moon could not be printed in a volume the size of this one!"[8] (566 pages). What an answer for a problem!

Yet it does not seem strange that foremost scientists in our universities, in making decisions which shape the lives of hundreds of human personalities, solve some of their most intricate educational problems with a snap of the finger or, at most, the pseudo-scientific deliberations of a faculty meeting, without even a semblance of the data and experimentation that might be obtained by intelligent direction and effort?

An institution which establishes a self-surveying service frankly recognizes its imperfections and by its willingness to invest the necessary time and money tends to develop an

[8] Moulton, Forest Ray: "The Nature of the World and Man." H. H. Newman, Editor, University of Chicago Press. Pages 3, 4, and 9.

attitude of self-criticism and experimentation which is the basis of sound professional growth. If present signs are not misleading, another generation will show a decided change in our approach to the solution of problems of higher education.

Summarizing now briefly, I shall restate the policies under which our division operates at the University of Pittsburgh, which policies we believe to be sound.

1. That the self-survey method is an improvement over the outside survey, although educational experts who know survey technique should be called in frequently in an advisory capacity.

2. That the self-survey should be continuous and not sporadic.

3. That a definite organization should be set up in the institution and given official administrative recognition both authoritative and financial commensurate with its responsibilities.

4. That no teaching should be required of the staff of the division except that which contributes directly to the advancement of their work.

5. That it should do its work not apart from the faculty but in cooperation with it.

6. That the division should not be charged with the task of the administration of its proposals, except in so far as new administrative technique is necessary as a part of the proposal and is requested by the university administration.

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Diagnostic Value of the Vocational Interest Test[1]

Summary.—One hundred and fifty-six seniors of the class of 1927 filled out the Vocational Interest blank a few weeks before graduation. In January 1928 they reported their occupational choice. Comparison of these two sets of data shows:

Forty-six per cent have entered the occupation on which they scored highest in the test.

Twenty per cent have entered the occupation on which they scored second highest.

Eleven per cent have entered the occupation on which they scored third highest.

Seventy-seven per cent have entered the occupation on which they scored first, second or third highest from among fifteen different occupations. Only 18 per cent have entered an occupation for which, according to the test, they have no interest. When several modifying factors are taken into consideration, as outlined below, the results appear still better.

Considering the fact that many of these men will change their occupation in the next few years and that some have entered occupations they are not interested in due to family and financial considerations, these results are about as satisfactory as can be expected from a valid vocational guidance test.

Procedure.—In March, 1927, all the seniors at Stanford were requested to fill out the Vocational Interest blank. Two hundred and eighty-seven complied, a few more than two-thirds. They were asked to indicate their vocational choice at that time and also during January, 1928. None of these men knew the results of the test when they filled out the questionnaires in January, and only five have been notified since that date. A considerable number are pursuing graduate work, particularly in medicine and law, so that their statements in January of this year reflect their future occupational plans. The reports from the remainder of the students are colored more or less by their first jobs.

[1] Presented in part before the Western Psychological Association, August 4, 1928.

The interest blanks have been scored for interest in fifteen occupations: Advertising (Ad), architect (Arch), artist (painter) (R), certified public accountant (CPA), chemist (C), engineer (E), farmer (F), journalist (newspaper editor) (J), lawyer (L), life insurance salesman (L. I.), minister (M), phychologist (Psy), purchasing agent (P. A.), school teacher (T),[2] and Y. M. C. A. general secretary (Y). These occupations are referred to in the tables by the above abbreviations.

The weights to be given each item on the blank for each occupational scoring have been based upon data from adult men known to be successful in the occupation. The scales are not based upon the students' blanks in any way whatever. Consequently, if a student appears to have the interests of an engineer, for example, it means he has checked the blank in the same way that the average successful engineer checked it.

The raw scores are expressed in terms of the ratings A, B+, B, B−, and C. A rating of A means the individual has the interests of that occupational group, a rating of C means he does not have those interests and a rating of B is intermediate, meaning he probably has those interests but we cannot be sure. Statistically speaking the ratings represent raw scores falling between these limits:

Rating of A above −1Q on distribution of criterion group.
Rating of B+ between −1Q and −2Q criterion group.
Rating of B between −2Q and −3Q criterion group.
Rating of B− between −3Q and −3.5Q criterion group.
Rating of C below −3.5Q.[3]

[2] Nearly all the members of the criterion group for school teachers are members of Phi Delta Kappa. Nearly all these men are, or intend to be, school administrators or professors of education in normal schools or departments of education.

[3] Due to certain complications, which it is not necessary to consider here, the limits of the B− and C ratings vary somewhat from the above in a few cases, Lawyers and journalists appear to be rather heterogeneous groups. Following approximately the above scheme results in giving men a rating of B− in law when they score between 0 and −68 and in giving men a rating of B in journalism when they score between 18 and −70 and a rating of B− when they score between −70 and −146. Negative scores should be rated C. But it seems best to follow the above scheme for the present, although it results in awarding a very large number of B and B− ratings in law and journalism.

TABLE I.—*Showing how 15 Students Rate on the Interest Test*

Code No.	Occupational choice	Occupational ratings															Ranking of chosen occupation in the test
		R	Ad	L	J	CPA	Chem.	E	F	Arch.	Psy.	LI	PA	M	T	Y	
161	?												B		B−		
60	?			B	B	B−						B+		B	B+	A	
234	?			B+	B+	B	B+	B+		B−	B+				B		
53	Elect. Eng.			B−	B−		A−	A	B+				B				1
89	Mech. Eng.						A	B+	B+		B+		B+	B−	A−	B	3
193	Chemistry			B			A	B		B−	B		B+				1
185	Chemistry ?						B	B+	A								3
277	Architect	B			B−		A	A	B+	A	B		B−				1
200	Law		B−	A	B+	B									B		1
275	Law				B									B	B−	B	10
197	Writer	A	A	A	A					B+	B−						1
283	Life Ins.		B−	B	B−							A	B−	B−	B	B+	1
238	Marketing											B+	A				
33	Advertising			B−					B−			B+	B+				10
14	Investments ?			B+					B			A	A				

Extent to which Interest Test Ratings Agree with Occupational Choices.—In Table 1 is set forth the detailed ratings of fifteen students in order to give some idea of all the various complications that are encountered. The particular records in this table have been selected in order to illustrate as many points as possible. Conclusions are given below and should not be drawn from these few selected cases.

Students Nos. 161, 60 and 234 reported no occupational choice. No. 161 has apparently no interest in any of these fifteen occupations, unless it is in that of a purchasing agent (rating B) or school teacher (rating B−). No. 60 rates highest as a Y. M. C. A. secretary, and next highest as a school teacher or life insurance salesman, occupations he has possibly not yet considered. No. 234 may not have yet decided upon an occupation because he has rather mild interests equally divided between law, journalism, chemistry, engineering and psychology, a rather unusual combination.

No. 53 is entering the occupation upon which he rates highest, i.e., engineering. No. 89, on the other hand, rates third in engineering; chemistry and teaching scoring higher. Of the two men entering chemistry, No. 193 rates highest in this occupation, whereas No. 185 rates third in chemistry and that only a rating of B. Possibly his doubt about entering this field after majoring in it, indicated by the question mark after chemistry in column two, is expressed in the interest test by his B rating. No. 277, who plans to be an architect, rates A in chemistry, engineering and architecture, but the latter is proportionately higher.

The rating of No. 200 is typical of one entering law, whereas the rating of No. 275 is not. We anticipate the latter will change his plans before long. No. 197 has a very unusual record; the four A ratings rank in order: Journalism, advertising, law, and art.

We have no way of scoring for interest in marketing or the investment business, hence the lack of ranking opposite the records of Nos. 238 and 14. Men interested in selling usually rate B or higher in both life insurance selling and purchasing, as shown here, but many not interested in selling also rate fairly high in the latter.

The last column of Table 1 gives the relative standing of the occupation the student has chosen in comparison with the other fifteen. Thus No. 53, who plans to be an electrical engineer, rates highest according to the interest test in engineering; whereas No. 89, who plans to be a mechanical engineer, rates highest in chemistry, second highest in teaching, and only third in engineering.

Table 2 gives the percentage of Stanford seniors who have the interest of men engaged in these fifteen occupations. The largest number are interested in law or jour-

TABLE 2.—*Per Cent of Stanford Seniors* (1927) *Who Have the Interests of Men Engaged in Fifteen Different Occupations.*

Occupations	*Per cent who rate* A	B
Law	9	60[4]
Journalism	11	48[4]
Farming	8	41
Engineering	13	30
Life Insurance Selling	5	31
Chemistry	10	25
Purchasing Agent	5	29
Advertising	0	29
Teaching	3	20
Psychology	2	17
Y. M. C. A. Secretary	2	14
Architect	1	13
Public Accounting	0	11
Ministry	1	9
Art (painting)	1	6

nalism, between which there is a very high correlation (over 80). Consequently the same men tend to rate high in both occupations. The same situation holds in the case of interest in farming,[5] engineering and chemistry. The high intercorrelation among the three occupations explains in part the surprising number of Stanford men interested in farming, although there is no department of agriculture at the institution. Such men are largely found among those majoring in engineering and chemistry.

Interest in entering business is best reflected (although

[4] See Footnote 3 for partial explanation of these high percentages.

[5] All of the men comprising our criterion group of farmers are graduates of the University of California Agricultural College and have been engaged in actual farming for five years or more.

not at all adequately) by interest in selling life insurance, the work of a purchasing agent and in advertising. Seventy-four per cent of the Stanford seniors planning to enter business rate A or B in purchasing, 49 per cent so rate in selling life insurance, and 28 per cent in advertising. As there is little correlation between these three interests, relatively few men rate high in any two of them or in all three of them.

Relatively few men rate B and almost none rate A in teaching, psychology, Y. M. C. A. secretary, architect, public accounting, ministry and art. These low percentages agree with the small number of seniors who have expressed their intention to enter these occupations.

From the data in Table 2 one is apt to draw the conclusion that a very large proportion of the 287 seniors are interested in these fifteen occupations. One is likely to come to this conclusion even if the B ratings are excluded from consideration. As an actual fact, 52 per cent of the seniors do not rate A in any one of the fifteen occupations. On the other hand, 28 per cent rate A in one occupation, 12 per cent rate A in two occupations, 7 per cent in three, and 1 per cent in four. It is these duplications that give this erroneous conclusion. Before we may draw any conclusion as to whether there are any number of men who have no real interest in any occupation we must develop scales for measuring interest in many additional occupations.

Forty-nine of these seniors are not sure of their occupational choice as given in January, 1928. Seventy per cent of this group do not rate A in any one of the fifteen occupations. On the other hand, 4 per cent rate A in four different occupations and 2 per cent in five occupations. It is suggested that those students who are slow to make up their minds as to a vocation are, on the whole, students who do not have definite interests or have very strong interests in several different lines. At least this group of undecided men differ from those who have made a definite choice in these two directions.

Consider now the extent to which the ratings on the interest test agree with the occupational choices of these students.

In this comparison it is necessary to omit all those students who either have made no occupational choice at all or who have selected an occupation for which we have at present no scale for measuring interest in it. This gives us the records of 156 students, similar to the ten students given a ranking in the last column of Table 1.

These 156 records have been subdivided into two groups, composed, first, of students who definitely give their occupational choice; and second, of students who indicate that they are not sure that the choice they have given is correct. An example of the latter is: "I am in the public accounting field at present but am not sure if I shall stay with it. I desire to become a business executive preferably dealing with finance." This student's occupational choice is recorded as "accounting." Another student's choice of "investments." is expressed by him as, "I am still undecided regarding investments and law." Some students give three and even four such alternates. We tried expressing these choices by using fractions but finally resorted to the simpler device of recognizing only a definite or a qualified choice, and in the latter case recognizing only the occupation the student named first, unless his statement was very clear he preferred other occupation. There is apparently no way by which the varied ways of expressing choice of occupation may be reduced to definite terms for statistical use. Some students will give engineering with qualifications meaning that they are wavering between it and law, while others will make the same statement meaning they are wavering between design and research electrical engineering. Considerable error must creep into any one's calculations at this point.

From Table 3 we see that 71 of the 156 students, or 46 per cent, have entered the occupation on which they received the highest rating in the interest test; and 20 per cent have entered the occupation on which they received the second highest rating, or a total of 66 per cent that are for all practical purposes correctly placed by the test.

There is, however, not such close agreement in the case of the 41 students who are not certain of their occupational

TABLE 3.—*Number and Per Cent of Students Entering the Occupation in Which They Are Rated First, Second, Third, Fourth, or Fifth, According to the Interest Test.*

Entering the occupation in which they receive:	Entire 156 students		41 students not sure of their choice		115 students sure of their choice	
	No.	%	*No.*	%	*No.*	%
The highest rating.....	71	46	14	34	57	50
The second highest rating.	31	20	7	17	24	21
The third highest rating..	17	11	4	10	13	11
The fourth highest rating.	7	4	2	5	5	4
The fifth highest rating...	2	1	0	0	2	2
A C rating.....	28	18	14	34	14	12
Total.....	156		41		115	

choice. Here only 51 per cent have entered the occupation on which they received highest and second highest test rating. In addition we find that 34 per cent of this group have tentatively chosen an occupation in which they are rated C by the test.

If consideration is given to only the 115 students who definitely state their occupational choice, we find 50 per cent entering the occupation on which they are rated highest among fifteen occupations on the test and 21 per cent entering the occupation on which they are rated second highest, whereas only 12 per cent are apparently entering an occupation for which they have no interest according to the test. Such figures are truly significant.

Extent to Which Seniors Have Determined Their Occupational Choice.—Twenty-four per cent of the 287 students gave no occupational preference in March, 1927, only a short time before graduation, and 12 per cent stated an occupation but with such qualifications as to indicate they were not sure. This makes a total of 36 per cent who were not sure of what they were going to do after graduation.

Nine months later 9 per cent gave no cocupational preference and 16 per cent were not sure of their expressed choice. During these nine months, there was an increase of 11 per cent of those who were certain they knew what their occupation was to be.

A more detailed analysis of these statistics is of interest. Of the 24 per cent who gave no choice in March, 1927, 8 per cent gave no choice in January, 1928, 10 per cent gave a definite choice, and 6 per cent gave a choice with qualifications.

Of the 12 per cent who gave a choice with qualifications, 10 per cent gave, nine months later, a definite choice and 2 per cent remained in doubt.

Of the 64 per cent who gave a definite choice, 56 per cent still gave a definite choice, but 8 per cent had become doubtful of their plans.

When the statements of these 56 per cent who were certain of their occupational choice on both dates are analyzed it is found that 44 per cent have made no change, 9 per cent have made a slight change within their occupational field, 2 per cent have made a somewhat greater change and 1 per cent have made radical changes, such as, foreign trade to medicine, mining engineering to marketing, mining engineering to journalism, and mechanical engineering to retail merchandising.

Possibly the above figures may be most clearly expressed in tabular form, as in Table 4.

TABLE 4.—*Extent to Which Seniors Change Their Occupational Choices During the Nine Months Just before and after Graduation.*

Have remained certain with no occupational change at all	44%	
Have remained certain with slight occupational change	11	
Have remained doubtful with no occupational change	2	
Have shifted from doubt to certainty with no occupational change	9	
Total maintaining the same occupational program		66%
Have changed from no choice to definite choice	10	
Are still doubtful of their choice, 6 per cent shifting from no choice to a doubtful choice and 9 per cent from certainty to doubt	15	
Total changing their program		25%
Have continued without an expressed occupational choice		9%

Two-thirds of Stanford seniors have definitely selected their vocation before graduation and still adhere to that program several months later. One-third either have no definite program or are doubtful of their program.

These 287 men will be asked to state their vocational program next January. It will be interesting to discover the extent to which their plans have changed in the year and a half after graduation; also to determine whether these changes have been in the direction of their interests before graduation as indicated by the interest test.

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